Pathology introduction

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- **Pathology: Is the science that deals with study of disease.**

- **The study includes the following points:**

1- Etiology
2- Nature of disease
3- Pathogenesis
4- Pathological examination.
5- Prognosis.
6- Complication.
7- Fate.
8- Investigation.

I. Etiology:

This means the causes of the disease.

- The etiology includes:

1-Predisposing factors:

- These are factors which help development of the disease. This occurs in one of two ways.

1- Decreased body defense (favors infection)

2- Increased susceptibility (suggested to be hereditary) as Bronchial asthma

2- Exciting factors:

- Is the direct cause of the disease (i.e. cause lesion).

1) Defective fetal development in the uterus:

- Congenital
- Hereditary (genetic)

2) Acquired factors (after birth):

- Exogenous (environmental) factors as microbes, nutritional deficiency (protein, vitamins, etc.)
- Endogenous (internal factors) as endocrine disturbance, hypertension, peptic ulcer, etc.

II. Nature of the disease:

- Congenital & Hereditary diseases
- Acquired diseases

1- Inflammation

2- Degeneration

3- Circulatory disturbance

4- Tumors

III. Pathogenesis:

- The mechanisms by which the causative agent produce the pathological changes in the tissues, i.e. mechanism of formation of the lesion.

IV. Pathological examination of the lesions:

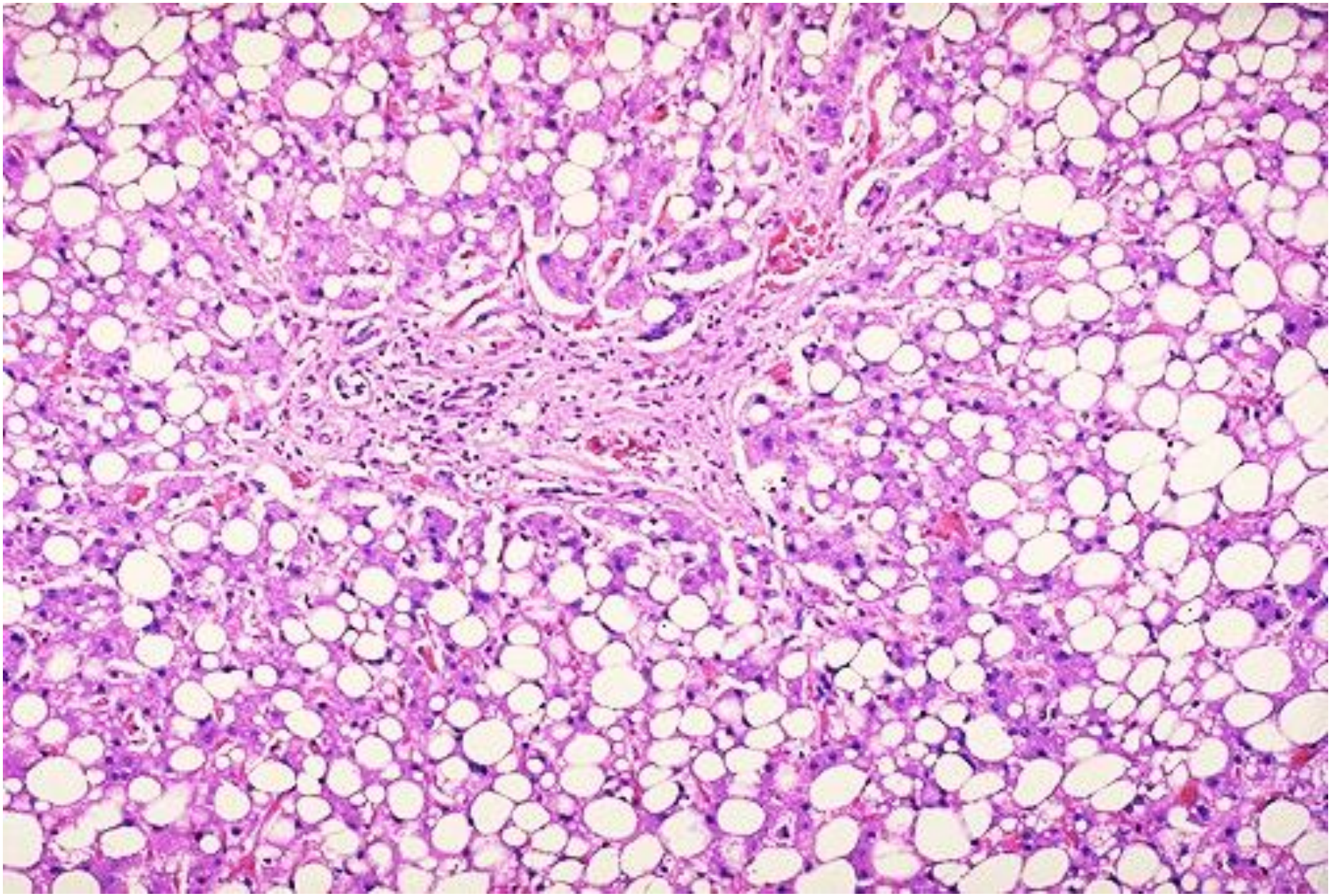
(Structural changes in the diseased tissues)

which includes:

- Gross picture (macroscopic picture): A naked eye description of the pathological changes.
- Microscopic picture (histological): These are the changes in the tissues of organs detected on microscopic examination by:
  - Light microscope
  - Electron microscope
  - Immunohistological techniques.

N/E

M/E



V. Prognosis:

Is the forecast of the course & termination of a disease.

VI. Complications:

Are additional pathological changes which may occur during or after the termination of the usual course of the disease.

VII. Fate:

It includes prognosis & complication of the disease.

VIII. Pathological investigations:

- **Biopsy:** Is the study of a specimen from the lesion during life.
- **Autopsy:** Is post-mortem examination of the cadaver.

➢ The materials obtained are put immediately in fixative fluid to prevent its autolysis. This fluid is commonly 10% formalin.

Surgical pathology

- Involves gross & microscopic examination of surgical specimens as well as biopsies submitted by clinicians.

Specimens

1) Excision biopsy: therapeutic surgical restriction of entire lesion.

2) Incision biopsy: surgical restriction of a part of lesion for diagnosis.

3) Tru cut biopsy: core of tissue obtained by the use of large-bore needles sometimes under guidance of radiological technique

4) Fine needle aspiration: fluid aspiration from cystic lesion tissue by fine needle for cytologic smear preparation & examination of aspirated cells.

5) Aspiration of body fluid: for cytological smear preparation & examination (as urine, ascitis).

Fixation

- Widely used fixative is **10% formaldehyde (formalin)** buffered to neutral pH.
- **Importance:**

  1- Preserve morphology.

  2- Prevent decomposition & autolysis.

  3- Minimize microbial/fungal growth.

  4- Minimize loss of molecular components.

Sending you a li'l note to say...

keep smiling ! keep shining !

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